What Is Claimed Is:

1. An isolated nucleic acid molecule encoding a Rickettsia felis outer membrane protein.

2. The isolated nucleic acid molecule of claim 1 wherein said nucleic acid is deoxyribonucleic acid.

3. The isolated nucleic acid molecule of claim 2 wherein said deoxyribonucleic acid is cDNA.

4. The isolated nucleic acid molecule of claim 3 wherein said nucleic acid molecule has a nucleotide sequence as shown in SEQ ID NO:1.

5. The isolated nucleic acid molecule of claim 1 wherein said nucleic acid molecule encodes an amino acid sequence as shown in SEQ ID NO:2.

6. The isolated nucleic acid molecule of claim 1 wherein said nucleic acid is ribonucleic acid.

7. The isolated nucleic acid molecule of claim 6 wherein said ribonucleic acid is mRNA.

8. A nucleic acid molecule complementary to at least a portion of the mRNA of claim 7.

9. A cell comprising the nucleic acid molecule of claim 8.

10. An expression vector comprising the nucleic acid molecule of claim 8.

11. A cell comprising the expression vector of claim 10.

12. A method of decreasing expression of a Rickettsia felis outer membrane protein in a host cell, said method comprising introducing the nucleic acid molecule of claim 8 into the cell, wherein said nucleic acid molecule blocks translation of said mRNA so as to decrease expression of said Rickettsia felis outer membrane protein in said host cell.

13. A cell comprising the nucleic acid molecule of claim 1.

14. An expression vector comprising the nucleic acid molecule of claim 1.

15. A cell comprising the expression vector of claim 14.

16. A method of increasing expression of Rickettsia felis outer membrane protein in a host cell, said method comprising:

introducing the nucleic acid molecule of claim 1 into the cell; and

allowing said cell to express said nucleic acid molecule resulting in the production of Rickettsia felis outer membrane protein in said cell.

17. A method of screening a substance for the ability of the substance to modify Rickettsia felis outer membrane protein function, said method comprising:

introducing the nucleic acid molecule of claim 1 into a host cell;

expressing said Rickettsia felis outer membrane protein encoded by said nucleic acid molecule in the host cell;

exposing the cell to a substance; and

evaluating the exposed cell to determine if the substance modifies the function of the Rickettsia felis outer membrane protein.

18. The method of claim 17 wherein said evaluation comprises monitoring the expression of Rickettsia felis outer membrane protein.

19. A method of obtaining DNA encoding a Rickettsia felis outer membrane protein, said method comprising:

selecting a DNA molecule encoding a Rickettsia felis outer membrane protein, said DNA molecule having a nucleotide sequence as shown in SEQ ID NO:1;

designing an oligonucleotide probe for a Rickettsia felis outer membrane protein based on SEQ ID NO:1;

probing a genomic or cDNA library of an organism with the oligonucleotide probe; and

obtaining clones from said library that are recognized by said oligonucleotide probe, so as to obtain DNA encoding a Rickettsia felis outer membrane protein.

20. A method of obtaining DNA encoding a Rickettsia felis outer membrane protein, said method comprising:

selecting a DNA molecule encoding a Rickettsia felis outer membrane protein, said DNA molecule having a nucleotide sequence as shown in SEQ ID NO:1;

designing degenerate oligonucleotide primers based on SEQ ID NO:1; and

utilizing said oligonucleotide primers in a polymerase chain reaction on a DNA sample to identify homologous DNA encoding a Rickettsia felis outer membrane protein in said sample.

21. An isolated nucleic acid molecule encoding a Rickettsia felis outer membrane protein, said nucleic acid molecule encoding a first amino acid sequence having at least 90% amino acid identity to a second amino acid sequence, said second amino acid sequence as shown in SEQ ID NO:2.

22. A DNA oligomer capable of hybridizing to the nucleic acid molecule of claim 1.

23. A method of detecting presence of a Rickettsia felis outer membrane protein in a sample, said method comprising:

contacting a sample with the DNA oligomer of claim 22, wherein said DNA oligomer hybridizes to any of said Rickettsia felis outer membrane protein present in said sample, forming a complex therewith; and

detecting said complex, thereby detecting presence of a Rickettsia felis outer membrane protein in said sample.

24. The method of claim 23 wherein said DNA oligomer is labeled with a detectable marker.

25. An isolated Rickettsia felis outer membrane protein.

26. The Rickettsia felis outer membrane protein of claim 25 wherein said Rickettsia felis outer membrane protein is encoded by a nucleotide sequence as shown in SEQ ID NO:1.

27. The Rickettsia felis outer membrane protein of claim 25 wherein said Rickettsia felis outer membrane protein is encoded by an amino acid sequence as shown in SEQ ID NO:2.

28. An isolated Rickettsia felis outer membrane protein encoded by a first amino acid sequence having at least 90% amino acid identity to a second amino acid sequence, said second amino acid sequence as shown in SEQ ID NO:2.

29. An antibody or antigen-binding fragment thereof specific for the Rickettsia felis outer membrane protein of claim 28.

30. A composition comprising the Rickettsia felis outer membrane protein of claim 28 or an antigenic portion thereof and a compatible carrier.

31. A method of detecting presence of a Rickettsia felis outer membrane protein in a sample, said method comprising:

contacting a sample with the antibody or antigen-binding fragment thereof of claim 29, wherein said antibody or antigen-binding fragment thereof binds to any of said Rickettsia felis outer membrane protein present in said sample, forming a complex therewith; and

detecting said complex, thereby detecting presence of a Rickettsia felis outer membrane protein in said sample.

32. The method of claim 31 wherein said antibody or fragment thereof is labeled with a detectable marker.

33. A method of preventing Rickettsia felis infections by Rickettsia felis present in a carrier host, the method comprising administering to the carrier host an amount of a compound effective to modify levels of functional Rickettsia felis outer membrane protein in Rickettsia felis present in the carrier host.

34. The method of claim 33 wherein the compound modifies levels of functional Rickettsia felis outer membrane protein by modifying Rickettsia felis outer membrane protein gene expression.

35. The method of claim 34 wherein modifying Rickettsia felis outer membrane protein gene expression comprises exposing the carrier host to a compound which modifies Rickettsia felis outer membrane protein gene expression.

36. The method of claim 33 wherein the compound is an inhibitor of the functional Rickettsia felis outer membrane protein.

37. The method of claim 33 wherein the carrier host is a cat flea.

38. A method of reducing Rickettsia felis infection of a carrier host, the method comprising administering to the carrier host an amount of a compound effective to prevent function of a Rickettsia felis outer membrane protein in the carrier host.

39. The method of claim 38 wherein the compound prevents function of a Rickettsia felis outer membrane protein by modifying Rickettsia felis outer membrane protein gene expression.

40. The method of claim 39 wherein modifying Rickettsia felis outer membrane protein gene expression comprises exposing the carrier host to a compound which modifies Rickettsia felis outer membrane protein gene expression.

41. The method of claim 38 wherein the compound is an inhibitor of the functional Rickettsia felis outer membrane protein.

42. The method of claim 38 wherein the carrier host is a cat flea.